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Mass transfer to falling films. I. Application of the surface stretch model to uniform wave motion, Howard, D. W., and E. N. Lightfoot, **AIChE Journal, 14,** No. 3, p. 458 (May, 1968).

Key Words: A. Velocity Profiles-1, Surface Stretch Model-1, 10, Stanton Number-2, Mass Transfer Rate-2, Prediction-4, Gas Absorption-4, 7, 8, Liquids-5, Ripples-6, Films-9, Rippling-0, Liquid-0. B. Prediction-8, Gas Absorption-9, Surface Stretch Model-10.

Abstract: A method is developed for predicting rates of gas absorption into laminar rippling films in terms of the surface velocities. The description is an extension of the surface-stretch model of mass transfer (1) and is therefore useful for cases of high Peclet number. The description can be used with any of the presently known hydrodynamic models of rippling films and with any future models which may be developed, provided they satisfy two relatively nonrestrictive conditions: (1) the ripples are of a two dimensional nature, being of constant thickness in the direction normal to their direction of propagation, and having no velocity components in this transverse direction; and (2) the ripples propagate at constant celerity and with constant shape. It can be used for both traveling and standing waves and can be extended do describe the effects of high net-mass transfer rates and combined diffusion and chemical reaction.

Optimal control of a distillation column, Brosilow, C. B., and K. R. Handley, **AIChE Journal, 14,** No. 3, p. 467 (May, 1968).

Key Words: A. Control-8, Feedback-10, Optimization-8, Distillation-9, Rectification-9, Algorithms-10, Pilot Plant-0.

Abstract: Optimal feedback control has been implemented on a fifteen tray pilot scale rectifying column. The results show that excellent control is obtained in spite of major upsets in the feed flow rate and for large changes in the controller set point. Design and implementation costs for the optimal control system should be competitive with those for standard control systems.

Catalytic dehydrogenation of Cyclohexane: a transport controlled model, Graham, R. R., F. C. Vidaurri, Jr., and A. J. Gully, **AIChE Journal, 14,** No. 3, p. 473 (May, 1968).

Key Words: A. Kinetics-8, Catalysis-4, 8, Modeling-8, Reaction Rate-7, 8, Equilibrium-8, 9, Cyclohexane-1, 8, Hydrogen-2, 5, Benzene-2, Temperature-6, Pressure-6, Reynolds Number-6, Differential Reactor-10, Platinum-on-Alumina-4, 5, Mass Transfer-9, Heat Transfer-9, Diffusion-9.

Abstract: Experimental data and a mathematical model for the dehydrogenation of cyclohexane on a platinum-on-alumina catalyst in the presence of excess hydrogen are presented. Differential rate data were obtained, using a fixed bed flow reactor, over a temperature range of 400 to 500°C, a pressure range of 21.3 to 41.8 atm. at modified Reynold's numbers of 20 to 65. Cyclohexane concentration was varied from 16 to 25 mole %. In the development of the basic model, complete transport control of the overall reaction rate with equilibrium at the fluid external surface interface is assumed. The average deviation between experimentally determined and basic model calculated rates was 5.65%.

Modification of the model by replacing the equilibrium assumption by a crude surface rate expression resulted in a reduction in average deviation to 4.3% and the maximum deviation was reduced from 22 to 12%.

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are not tremendous problems, just annoyances. In some instances, two different symbols are used for the same thing on the same page; in others, the same symbol is used for two different things on the same page. In view of this, the Nomenclature given at the end of each chapter is often misleading or incorrect. In one particular kinetics problem, fourteen reactions are postulated to occur; these are then meshed together diagramatically. The example would have been easier to follow had the equations been numbered.

The author has aimed this book at "the undergraduate and graduate chemical engineer, as well as the practicing process engineer." He presumes that the reader already possesses background in the fundamentals of transport phenomena, kinetics, and vapor-liquid equilibrium. Certainly a good bit of it could be understood by seniors, at least with some explanation by an instructor. On the other hand, many schools probably would not build a course around it. Some sections surely could be integrated into existing courses. Problems are presented at the end of each chapter and these could be used for instruction.

As I read through the book, the question of do the Models work continually arose in my mind. It would have been very interesting to see some of the solutions produced by the computer. Undoubtedly, many of the examples came out of problems which the author tackled in his work in the Engineering Computation and Analysis Engineering Department of E. I. du Pont de Nemours and Company, Inc.

Although the mission of the book clearly was not to prove that the models work, an occasional proof might have added some flavor to the book and would also convince the reader that the whole business of model building might be worthwhile.

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ADDENDUM

In the paper "Turbulent Flow in Concentric Annuli" by Curtis W. Clump and Daniel Kwasnoski (Vol. 14, No. 1., pp. 164-168), the following acknowledgement should be noted:

The authors appreciate the contributions of Dr. R. A. Wolffe who put forth the original ideas for the work and aided immeasurably in its early stages. The use of the computing facility at the Homer Research Laboratory of the Bethlehem Steel Corporation is gratefully acknowledged.